# THEORETICAL POPULATION BIOLOGY

AN INTERNATIONAL JOURNAL


EDITORS

P. Chesson

K. Dietz
S. Karlin
T. Schoener
A. Templeton

ASSOCIATE EDITORS

P. Abrams
R. M. Anderson
J. L. Aron
M. G. Bulmer
B. Charlesworth
C. C. Cockerham
W. Engels
W. J. Ewens
J. M. Hoem
N. Kaplan
M. Kimura
S. Lessard
B. Levin
C. Matessi
T. Nagylaki
T. Ohta
S. W. Pacala
M. Slatkin
S. Tavaré
E. Thompson
S. D. Tuljapurkar
M. Turelli
M. Uyenoyama
G. A. Watterson
B. S. Weir

MANAGING EDITOR

M. Feldman



VOLUME 31 • 1987

ACADEMIC PRESS, INC.

Harcourt Brace Jovanovich, Publishers

**San Diego Orlando New York Austin Boston**
**London Sydney Tokyo Toronto**

Copyright © 1987 by Academic Press, Inc.
All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1987 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0040-5809/87 $3.00

*Printed by Catherine Press, Ltd., Brugge, Belgium*

# CONTENTS OF VOLUME 31

## Number 1, February 1987


Andrew Sih. Prey Refuges and Predator–Prey Stability . . . 1

J. G. Ollason. Learning to Forage in a Regenerating Patchy Environment: Can It Fail to Be Optimal? . . . . . 13

Freddy Bugge Christiansen and Volker Loeschcke. Evolution and Intraspecific Competition. III. One-Locus Theory for Small Additive Gene Effects and Multidimensional Resource Qualities 33

Steven A. Frank. Individual and Population Sex Allocation Patterns . . . . . 47

Hans-Rolf Gregorius. Selection in Plant Populations of Effectively Infinite Size. VI. Overlapping Generations . . . . . 75

H.-R. Gregorius, M. Ziehe, and M. D. Ross. Selection Caused by Self-Fertilization. I. Four Measures of Self-Fertilization and Their Effects on Fitness . . . . . 91

Mark D. Rausher and Ruth Englander. The Evolution of Habitat Preference. II. Evolutionary Genetic Stability under Soft Selection . . . . . 116

Joel S. Brown and Thomas L. Vincent. A Theory for the Evolutionary Game . . . . . 140

Jan Ekman and Björn Rosander. Starvation Risk and Flock Size of the Social Forager: When There Is a Flocking Cost . . 167

Norman L. Kaplan and Richard R. Hudson. On the Divergence of Genes in Multigene Families . . . . . 178


## Number 2, April 1987


W. G. S. Hines. Evolutionary Stable Strategies: A Review of Basic Theory . . . . . 195

Daniel A. Vasco, Apolinario D. Nazarea, and R. H. Richardson. Dynamics and Stability in Coevolutionary Ecological Systems. I. Community Stability and Coevolutionarily Stable States . . . . . 273

Young J. Kim. Dynamics of Populations with Changing Rates: Generalization of the Stable Population Theory . . . . . 306

Franco Spirito, Marco Rizzoni, Elena Lolli, and Carla Rossi. Reduction of Neutral Gene Flow Due to the Partial Sterility of Heterozygotes for a Linked Chromosome Mutation 323

Sabin Lessard. The Role of Recombination and Selection in the Modifier Theory of Sex-Ratio Distortion . . . . . 339

STEPHEN W. PACALA. Neighborhood Models of Plant Population Dynamics. 3. Models with Spatial Heterogeneity in the Physical Environment . . . . . 359

HUGH N. COMINS AND MICHAEL P. HASSELL. The Dynamics of Predation and Competition in Patchy Environments . . . . 393

CRAIG M. PEASE. An Evolutionary Epidemiological Mechanism, with Applications to Type A Influenza . . . . . 422

BRADLEY R. ANHOLT, DONALD LUDWIG, AND JOSEPH B. RASMUSSEN. Optimal Pursuit Times: How Long Should Predators Pursue Their Prey? . . . . . 453

S. ROUHANI AND N. BARTON. Speciation and the "Shifting Balance" in a Continuous Population . . . . . 465

AUTHOR INDEX FOR VOLUME 31 . . . . . 493